

**Notice of Allowability**

Application No.

10/524,548

Examiner

Chukwuma O. Nwaonicha

Applicant(s)

REY, PATRICK

Art Unit

1621

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2 November 2006.
2. ☒ The allowed claim(s) is/are 1-33.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

THURMAN K. PAGE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600

### **DETAILED ACTION**

#### ***Current Status***

1. This action is responsive to Applicants' communication of 2 November 2006.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 1-33 are in active consideration in the application.
4. The 103 rejection has been withdrawn following applicants amendment

#### ***Allowed Claims***

Claims 1-33 are allowable over the prior art of record.

#### ***Reason For Allowance***

The following is an examiner's statement of reasons for allowance: Applicants claim a process for the production of 3-methylthiopropional which comprises reacting reaction medium comprising methyl mercaptan and acrolein in the presence of a catalyst comprising an organic base characterised in that the organic base is N-alkyl morpholine compound, and a process for the production of 2-hydroxy-4-(methylthio)butanenitrile which comprises (a) a first step of reacting a reaction medium comprising methyl mercaptan and acrolein in the presence of a catalyst comprising an acid and an organic base to produce a product stream comprising 3-methylthiopropional and said catalyst; wherein the organic base is N-alkyl morpholine and (b) a second step of reacting said product stream with hydrogen cyanide in the presence of a catalyst thereby producing 2-hydroxy-4-(methylthio)butanenitrile, wherein all the variables are as defined in the claims. The process for preparing 3-methylthiopropional and 2-hydroxy-4-

Art Unit: 1621

(methylthio)butanenitrile wherein the process is catalyzed by N-alkyl morpholine was neither found to be obvious nor anticipated by the prior art of record.

The closest prior art is Blackburn et al. {US 5,705,675}. Blackburn et al. teach a catalytic processes for the preparation of 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile using novel addition catalysts. The novel addition catalysts include: triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, 4-dimethylaminopyridine, picoline, pyrazine, trialkylamines having from three to eighteen carbon atoms in each of the alkyl substituents bonded to the nitrogen atom and tertiary amines, and an acidic catalyst. Additionally, Blackburn et al. teach the process of making 2-hydroxy-4-(methylthio)butanenitrile, by adding an amount of organic base into the reaction product mixture to promote the reaction of 3-methylthiopropenal with hydrogen cyanide. The reaction is conducted at a temperature of 30°C and 70°C and mole ratio of organic base to methyl mercaptan is from 0.001 to 0.02.

Blackburn et al. process for preparing 3-(methylthio)propanal and 2-hydroxy-4-(methylthio)butanenitrile differs from the instantly claimed process in that applicants' process specifically employ **N-alkyl morpholine compound (a mild base)** as an organic base catalyst while Blackburn et al. teach a process that employed a stronger organic base catalyst: triisopropanolamine, nicotinamide, imidazole, benzimidazole, 2-fluoropyridine, poly-4-vinylpyridine, picoline, pyrazine, 4- dimethylaminopyridine, trialkylamines or tertiary amines. Another difference between applicants claimed invention and the process of Blackburn et al. is that Blackburn et al. teach a process

Art Unit: 1621

that operates at a temperature of 30°C and 70°C and employ a mole ratio of organic base to methyl mercaptan from 0.001 to 0.02 while applicants claim a process that operates at a temperature of 20°C and 70°C and employ a mole ratio of organic base to methyl mercaptan from 0.0001 to 0.05. These are two different processes and the difference is not readily apparent and would not have been suggested to one of ordinary skill.

**All claims (1-33) are allowed.**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 1621

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.  
Patent Examiner  
Art Unit: 1621

THURMAN K. PAGE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600

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Thurman Page,  
Supervisory Patent Examiner,  
Technology Center 1600